

SEQUENCE LISTING

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<120> Cell Cycle Targets and Peptides

<130> 021044-002430PC

<140> WO PCT/US03/34669

<141> 2003-10-30

<150> US 60/422,912

<151> 2002-10-30

<150> US 60/460,845

<151> 2003-04-04

<160> 58

<170> PatentIn Ver. 2.1

<210> 1

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:peptide 35,  
peptide 88, peptide 35/88

<400> 1

Arg Leu Arg Arg Ile Cys Ser Gly Ile Leu Leu Ile Arg Arg Ile Leu  
1 5 10 15

Gly Ile Phe Val  
20

<210> 2

<211> 4

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:C-terminus  
vector-derived sequence

<400> 2

Arg Pro Val Arg  
1

<210> 3

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:C-terminus  
vector-derived sequence

<400> 3

Arg Pro Val Arg Pro  
1 5

<210> 4

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:peptide 38

<400> 4

Thr Ser Gly Leu Leu Lys Leu Val Gln Ala Lys Arg Lys Cys Cys Ile  
1 5 10 15

Ser

<210> 5

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:peptide 40

<400> 5

Arg Trp Asp Pro Thr Arg Leu Leu Arg Phe Arg Phe Leu Arg Met Leu  
1 5 10 15

Val Arg Arg Ser  
20

<210> 6

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:peptide 41

<400> 6

Gly Arg Gly Cys Ile Phe Arg Trp Arg Arg Gly Leu Arg Gly Met Met  
1 5 10 15

Arg Leu Phe Lys  
20

<210> 7

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:lysine residues  
fused to N-terminus, K7, lys7

<400> 7

Lys Lys Lys Lys Lys Lys Lys  
1 5

<210> 8

<211> 78

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:nucleotide  
sequence encoding peptide 35/88

<400> 8

cggctccgga gaatatgtag cggcattctg ctcattccgta ggatattggg cattttcggt 60  
aggcccgtga ggccctaa 78

<210> 9

<211> 53

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:nucleotide  
sequence encoding peptide 38

<400> 9

actagtgggt tgctgaagct ggtgcaggct aagcgtaagt gttgtattag tta 53

<210> 10

<211> 78

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:nucleotide  
sequence encoding peptide 40

<400> 10

cgttgggata cgacgcgatt gctgagattt cggttcctcc ggatgctagt gaggcggagt 60  
aggcccgtga ggccctaa 78

<210> 11

<211> 63

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:nucleotide  
sequence encoding peptide 41

<400> 11  
 ggaaggggat gtatcttttcg atggaggaga ggcctgcggg gaatgatgag actattttaag 60  
 tag 63

<210> 12  
 <211> 8  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <221> MOD\_RES  
 <222> (1)..(3)  
 <223> Xaa = large hydrophobic amino acid selected from  
 the group Leu, Ile, Phe, Met, Tyr or Trp, wherein  
 at least one is Leu or Ile, Xaa at position 3 may  
 be present or absent

<220>  
 <221> MOD\_RES  
 <222> (4)..(6)  
 <223> Xaa = large hydrophobic amino acid selected from  
 the group Leu, Ile, Phe, Met, Tyr or Trp, wherein  
 at least one is Leu or Ile, Xaa at position 6 may  
 be present or absent

<220>  
 <221> MOD\_RES  
 <222> (7)..(8)  
 <223> Xaa = large hydrophobic amino acid selected from  
 the group Leu, Ile, Phe, Met, Tyr or Trp, wherein  
 at least one is Leu or Ile

<220>  
 <223> Description of Artificial Sequence:peptide motif

<400> 12  
 Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa  
 1 5

<210> 13  
 <211> 6  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:linker

<400> 13  
 Glu Glu Ala Ala Lys Ala  
 1 5

<210> 14  
 <211> 37  
 <212> PRT  
 <213> Artificial Sequence

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<220>
<223> Description of Artificial Sequence:biotinylated
      peptide 40 fused to C-terminus of GFP

<220>
<221> MOD_RES
<222> (1)
<223> Xaa = biotinylated Gly

<400> 14
Xaa Met Asp Glu Leu Tyr Lys Glu Glu Ala Ala Lys Ala Arg Trp Asp
  1             5             10             15

Pro Thr Arg Leu Leu Arg Phe Arg Phe Leu Arg Met Leu Val Arg Arg
      20             25             30

Ser Arg Pro Val Arg
      35

<210> 15
<211> 37
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:inactive
      biotinylated alanine mutant of peptide 40

<220>
<221> MOD_RES
<222> (1)
<223> Xaa = biotinylated Gly

<400> 15
Xaa Met Asp Glu Leu Tyr Lys Glu Glu Ala Ala Lys Ala Arg Trp Asp
  1             5             10             15

Pro Thr Arg Ala Leu Arg Ala Arg Phe Ala Arg Ala Leu Val Arg Arg
      20             25             30

Ser Arg Pro Val Arg
      35

<210> 16
<211> 33
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:peptide 41
      fused to C-terminus of GFP

<400> 16
Gly Met Asp Glu Leu Tyr Lys Glu Glu Ala Ala Lys Ala Gly Arg Gly
  1             5             10             15

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Cys Ile Phe Arg Trp Arg Arg Gly Leu Arg Gly Met Met Arg Leu Phe  
 20 25 30

Lys

<210> 17  
 <211> 54  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:nucleotide  
 sequence of peptide 38 with in-frame stop codon

<400> 17  
 actagtgggt tgctgaagct ggtgcaggct aagcgtaagt gttgtattag ttag 54

<210> 18  
 <211> 25  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:peptide #40

<400> 18  
 Arg Trp Asp Pro Thr Arg Leu Leu Arg Phe Arg Phe Leu Arg Met Leu  
 1 5 10 15

Val Arg Arg Ser Arg Pro Val Arg Pro  
 20 25

<210> 19  
 <211> 25  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:peptide #88

<400> 19  
 Arg Leu Arg Arg Ile Cys Ser Gly Ile Leu Leu Ile Arg Arg Ile Leu  
 1 5 10 15

Gly Ile Phe Val Arg Pro Val Arg Pro  
 20 25

<210> 20  
 <211> 40  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:variant of  
 synthetic peptide #40 with N-terminus seven Lys  
 and linker, K7\_40

<400> 20

Lys Lys Lys Lys Lys Lys Lys Gly Gly Glu Glu Ala Ala Lys Ala Arg  
1 5 10 15

Trp Asp Pro Thr Arg Leu Leu Arg Phe Arg Phe Leu Arg Met Leu Val  
20 25 30

Arg Arg Ser Arg Pro Val Arg Pro  
35 40

<210> 21

<211> 40

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:variant of  
synthetic peptide #40 with N-terminus seven Lys  
and linker and alanine mutated residues, K7\_40 M

<400> 21

Lys Lys Lys Lys Lys Lys Lys Gly Gly Glu Glu Ala Ala Lys Ala Arg  
1 5 10 15

Trp Asp Pro Thr Arg Ala Leu Arg Ala Arg Phe Ala Arg Ala Leu Val  
20 25 30

Arg Arg Ser Arg Pro Val Arg Pro  
35 40

<210> 22

<211> 35

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:variant of  
synthetic peptide #41 with N-terminus seven Lys  
and linker, K7\_41

<400> 22

Lys Lys Lys Lys Lys Lys Lys Gly Gly Glu Glu Ala Ala Lys Ala Gly  
1 5 10 15

Arg Gly Cys Ile Phe Arg Trp Arg Arg Gly Leu Arg Gly Met Met Arg  
20 25 30

Leu Phe Lys  
35

<210> 23

<211> 35

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:variant of  
synthetic peptide #41 with N-terminus seven Lys  
and linker and alanine mutated residues, K7\_41 M

<400> 23

Lys Lys Lys Lys Lys Lys Lys Gly Gly Glu Glu Ala Ala Lys Ala Gly  
1 5 10 15

Arg Gly Cys Ile Phe Arg Ala Arg Arg Gly Ala Arg Gly Met Ala Arg  
20 25 30

Ala Phe Lys  
35

<210> 24

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:5 arginine  
residues

<400> 24

Arg Arg Arg Arg Arg  
1 5

<210> 25

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:linker

<400> 25

Gly Gly Glu Glu Ala Ala Lys Ala  
1 5

<210> 26

<211> 13

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:C-terminus of  
GFP and linker fused to biotinylated peptide 40,  
41 and 35

<400> 26

Gly Met Asp Glu Leu Tyr Lys Glu Glu Ala Ala Lys Ala  
1 5 10

<210> 27  
 <211> 200  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:poly Gly  
 flexible linker

<220>  
 <221> MOD\_RES  
 <222> (6)..(200)  
 <223> Gly residues from position 6 to 200 may be present  
 or absent

<400> 27  
 Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly  
   1                  5                  10                  15  
 Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly  
                   20                  25                  30  
 Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly  
                   35                  40                  45  
 Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly  
                   50                  55                  60  
 Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly  
                   65                  70                  75                  80  
 Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly  
                   85                  90                  95  
 Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly  
                   100                 105                 110  
 Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly  
                   115                 120                 125  
 Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly  
                   130                 135                 140  
 Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly  
                   145                 150                 155                 160  
 Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly  
                   165                 170                 175  
 Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly  
                   180                 185                 190  
 Gly Gly Gly Gly Gly Gly Gly Gly Gly  
                   195                 200

<210> 28  
 <211> 24  
 <212> PRT  
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:proliferating  
cell nuclear antigen (PCNA)-binding C-terminal  
peptide of tumor suppressor p21 (p21C)

<400> 28

Lys Arg Arg Gln Thr Ser Met Thr Asp Phe Tyr His Ser Lys Arg Arg  
1 5 10 15

Leu Ile Phe Ser Lys Arg Lys Pro  
20

<210> 29

<211> 25

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:peptide #40  
alanine mutant (M15A)

<400> 29

Arg Trp Asp Pro Thr Arg Leu Leu Arg Phe Arg Phe Leu Arg Ala Leu  
1 5 10 15

Val Arg Arg Ser Arg Pro Val Arg Pro  
20 25

<210> 30

<211> 25

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:peptide #40  
alanine mutant (L13A/M15A)

<400> 30

Arg Trp Asp Pro Thr Arg Leu Leu Arg Phe Arg Phe Ala Arg Ala Leu  
1 5 10 15

Val Arg Arg Ser Arg Pro Val Arg Pro  
20 25

<210> 31

<211> 25

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:peptide #40  
alanine mutant (F10A/L13A/M15A)

<400> 31  
Arg Trp Asp Pro Thr Arg Leu Leu Arg Ala Arg Phe Ala Arg Ala Leu  
1 5 10 15

Val Arg Arg Ser Arg Pro Val Arg Pro  
20 25

<210> 32  
<211> 20  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:peptide #41  
alanine mutant (L18A)

<400> 32  
Gly Arg Gly Cys Ile Phe Arg Trp Arg Arg Gly Leu Arg Gly Met Met  
1 5 10 15

Arg Ala Phe Lys  
20

<210> 33  
<211> 20  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:peptide #41  
alanine mutant (M16A/L18A)

<400> 33  
Gly Arg Gly Cys Ile Phe Arg Trp Arg Arg Gly Leu Arg Gly Met Ala  
1 5 10 15

Arg Ala Phe Lys  
20

<210> 34  
<211> 20  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:peptide #41  
alanine mutant (L12A/M16A/L18A)

<400> 34  
Gly Arg Gly Cys Ile Phe Arg Trp Arg Arg Gly Ala Arg Gly Met Ala  
1 5 10 15

Arg Ala Phe Lys  
20

<210> 35  
<211> 25  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:peptide #88  
alanine mutant (I18A)

<400> 35  
Arg Leu Arg Arg Ile Cys Ser Gly Ile Leu Leu Ile Arg Arg Ile Leu  
1 5 10 15

Gly Ala Phe Val Arg Pro Val Arg Pro  
20 25

<210> 36  
<211> 25  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:peptide #88  
alanine mutant (L16A/I18A)

<400> 36  
Arg Leu Arg Arg Ile Cys Ser Gly Ile Leu Leu Ile Arg Arg Ile Ala  
1 5 10 15

Gly Ala Phe Val Arg Pro Val Arg Pro  
20 25

<210> 37  
<211> 25  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:peptide #88  
alanine mutant (I12A/L16A/I18A)

<400> 37  
Arg Leu Arg Arg Ile Cys Ser Gly Ile Leu Leu Ala Arg Arg Ile Ala  
1 5 10 15

Gly Ala Phe Val Arg Pro Val Arg Pro  
20 25

<210> 38  
<211> 10  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:leucine-rich  
motif of HIV-1 Rev (amino acid position 75-84)

<400> 38

Leu Pro Pro Leu Glu Arg Leu Thr Leu Asp  
1 5 10

<210> 39

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:leucine-rich  
motif of Mitogen-activated protein kinase kinase  
1, MAPKK (amino acid position 33-43)

<400> 39

Leu Gln Lys Lys Leu Glu Glu Leu Glu Leu Asp  
1 5 10

<210> 40

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:leucine-rich  
motif of HTLV-1 Rex (amino acid position 82-93)

<400> 40

Leu Ser Ala Gln Leu Tyr Ser Ser Leu Ser Leu Asp  
1 5 10

<210> 41

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:leucine-rich  
motif of Human homologue of mouse double minute  
2, Hdm-2 (amino acid position 190-200)

<400> 41

Ile Ser Leu Ser Phe Asp Glu Ser Leu Ala Leu Cys  
1 5 10

<210> 42

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:leucine-rich  
motif of Protein kinase inhibitor, PKI (amino acid  
position 38-48)

<400> 42  
Leu Ala Leu Lys Leu Ala Gly Leu Asp Ile Asn  
1 5 10

<210> 43  
<211> 17  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:C-terminal 17  
residues of cell division cycle 42 isoform 2,  
CDC42C (amino acid position 183-191)

<400> 43  
Ala Ala Leu Glu Pro Pro Glu Thr Gln Pro Lys Arg Lys Cys Cys Ile  
1 5 10 15

Phe

<210> 44  
<211> 9  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:peptide  
#38Ndelta(1-8)

<400> 44  
Gln Ala Lys Arg Lys Cys Cys Ile Ser  
1 5

<210> 45  
<211> 4  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:peptide  
#38Ndelta(1-13)

<400> 45  
Cys Cys Ile Ser  
1

<210> 46  
<211> 17  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:peptide  
#38(T1A)

<400> 46  
Ala Ser Gly Leu Leu Lys Leu Val Gln Ala Lys Arg Lys Cys Cys Ile  
1 5 10 15

Ser

<210> 47  
<211> 17  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:peptide  
#38(S2A)

<400> 47  
Thr Ala Gly Leu Leu Lys Leu Val Gln Ala Lys Arg Lys Cys Cys Ile  
1 5 10 15

Ser

<210> 48  
<211> 17  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:peptide  
#38(G3A)

<400> 48  
Thr Ser Ala Leu Leu Lys Leu Val Gln Ala Lys Arg Lys Cys Cys Ile  
1 5 10 15

Ser

<210> 49  
<211> 17  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:peptide  
#38(L4A)

<400> 49  
Thr Ser Gly Ala Leu Lys Leu Val Gln Ala Lys Arg Lys Cys Cys Ile  
1 5 10 15

Ser

<210> 50  
<211> 17  
<212> PRT  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:peptide  
#38(L5A)

<400> 50

Thr Ser Gly Leu Ala Lys Leu Val Gln Ala Lys Arg Lys Cys Cys Ile  
1 5 10 15

Ser

<210> 51

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:peptide  
#38(K6A)

<400> 51

Thr Ser Gly Leu Leu Ala Leu Val Gln Ala Lys Arg Lys Cys Cys Ile  
1 5 10 15

Ser

<210> 52

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:peptide  
#38(L7A)

<400> 52

Thr Ser Gly Leu Leu Lys Ala Val Gln Ala Lys Arg Lys Cys Cys Ile  
1 5 10 15

Ser

<210> 53

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:peptide  
#38(V8A)

<400> 53

Thr Ser Gly Leu Leu Lys Leu Ala Gln Ala Lys Arg Lys Cys Cys Ile  
1 5 10 15

Ser

<210> 54  
<211> 17  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:peptide  
#38(C14A)

<400> 54  
Thr Ser Gly Leu Leu Lys Leu Val Gln Ala Lys Arg Lys Ala Cys Ile  
1 5 10 15

Ser

<210> 55  
<211> 24  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:peptide 40

<400> 55  
Arg Trp Asp Pro Thr Arg Leu Leu Arg Phe Arg Phe Leu Arg Met Leu  
1 5 10 15

Val Arg Arg Ser Arg Pro Val Arg  
20

<210> 56  
<211> 12  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:Human homologue  
of mouse double minute 2, HDM-2

<400> 56  
Leu Ser Leu Ser Phe Asp Glu Ser Leu Ala Leu Cys  
1 5 10

<210> 57  
<211> 13  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:N-terminal  
sequence of peptides 35, 40 and 41 synthesized  
with C-terminus of GFP and spacer residues

<220>  
<221> MOD\_RES  
<222> (1)  
<223> Xaa = biotinylated Gly

<400> 57

Xaa Met Asp Glu Leu Tyr Lys Glu Glu Ala Ala Lys Ala  
1 5 10

<210> 58

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:C-terminus  
of GFP

<400> 58

Met Asp Glu Leu Tyr Lys  
1 5